OPERATIONS AND MAINTENANCE

Recommended Preventive Maintenance Works

It is recommended that a preventative inspection is carried out every twelve months and service/maintenance works every thirty six months. PV modules require routine visual inspection for signs of damage, dirt build-up or shade encroachment. Solar PV fixtures must be checked for corrosion. This is to ensure that the Solar PV system is safely secured.

While the inverter's functionality can, depending upon the system specification, be remotely verified, only on-site inspection can verify the state of cables, cable connections, and circuit breakers.

Access to the roof would still be by existing methods, stairs and dormer hatch.

The following table shows some recommendations on the preventive maintenance works on the components and equipment, and the corresponding remedial actions to be carried out by qualified personnel.

	Components/Equipment	Description	Remedy/Action
1	PV Modules	Check for dust/debris on surface of module Check for physical damage Check for loose cable terminations between modules and arrays Check cable condition	Wipe clean with water (don't use solvents) Recommend replacements Retighten connection Replace if necessary
2	PV Inverter	Check functionality, e.g. auto disconnection upon loss of power Check ventilation conditions Check for loose cable terminations Check for abnormal operating temperature	Recommend replacement if functionality fails Clear dust and dirt in ventilation system Tighten connection Recommend replacement
3	Cabling	Check cables for wear and tear Check cable terminals for burnt marks, hot spots or loose connections	Replace cable if necessary Tighten connections or recommend replacement

4	Means of isolation	Check functionality	If fails recommend replacement
5	Junction boxes	Check cable connections for wear and tear and loose connections Check warning notices Check for physical damage	Tighten or recommend replacement if necessary Replace if necessary Recommend replacement if necessary

Recommended Condition Based Maintenance

	Task	Frequency	Action
1	Active Monitoring (on-site or remote)	Continuous	Assure good access to historical data Perform simple site analysis once a month
2	Warranty enforcement	Yearly	Make sure warranty terms are clear and up to date

Recommended Health and Safety

- Consider integrating PV O&M responsibility into the traditional utility electricity maintenance function. Leveraging existing personnel and expertise can help to institutionalize PV O&M and its value.

- Provide adequate workforce training and develop an organization safety policy if bringing the PV O&M function in-house. A basic overview of PV, DC safety protocol, and other safety-related issues (e.g., rooftop access, minimum manning requirements for rooftop access, safety procedures when working near skylights, etc.) should be included in the training.

- Install permanent protective barriers at rooftop skylights to prevent potential to insure workforce safety.